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CRITICISMS AND DISCUSSIONS.

TITCHENER'S SYSTEM OF PSYCHOLOGY.

When Professor Titchener finished his text-book of psychology, a clean, straight path had been made through the forest of facts, a path so straight that the end of the road can be seen from the first step. If Titchener were not a leader of experimentalists, a scientist with a constitutional bias against conceptualism and arm-chair psychology, the fact of his having a system would be most misleading. His insistence upon theory following rather than preceding facts is too well known to necessitate a defense of his right to have a system. The straight path was not laid down with ruler and compass upon a map in his study, nor was it directed toward a definite goal in the beginning, as his books bear witness. There were many blind leads which had to be retraced. There are many places still to be smoothed, and Titchener himself is the first to admit that future data may necessitate a shift of the line to the right or the left, but—and here is a vital point—if there is a shift it will be consistent with all that has gone before, just as each step of the present path is consistent with every other step.

The above is the imagery, which for the writer is the conscious representation of the meaning of Titchener's work. It is the purpose of this paper to lay bare the skeleton of the system and to show how firmly the parts are joined to make a whole.

The fundamental question, that of the relation of mind to body, is decided by Titchener in favor of psycho-physical parallelism,¹ a parallelism which considers mind and body as two aspects of the same thing. From the point of view of the physical, which is here the nervous processes, there is a continuity which does not exist on the mental side, nor does Titchener posit a sub-conscious

¹ The word parallelism is not an altogether fortunate one to use for this view, suggesting as it does two distinct processes running side by side and separated in space.

to complete the parallelism. A given nervous process, if accompanied at all, is accompanied invariably by the same mental process. A nervous process which is effective for consciousness may, however, occur without a mental process. The mental process, on the other hand, cannot occur unaccompanied by a nervous process. When there is a gap in the mental processes, the mental process just beyond the gap must necessarily, just as the accompanying nervous process, show the effect of the nervous process just completed. While in the realm of the physical the causal law rules, lack of continuity prevents its application on the mental side. The invariable parallelism, that of a given mental process always being accompanied by the same physiological process, rescues psychology for the sciences, only the explanations must ultimately be in physiological terms.

An analysis of the stream of consciousness reveals two elementary processes, sensation and imagery being the sub-classes under the one process, and affection the other process. Titchener often speaks of three processes, counting sensation and imagery as two processes, but he himself treats them as sub-classes of a common element and says that they differ only in degree and not in attributes, so that the twofold division is the logical one.

The *propria* of sensation are quality, intensity, clearness and duration. Extension is only an *accidens*, being absent in the sensation of smell and possibly also in hearing. As was just mentioned, the images possess the same attributes. The affections have all of the *propria* of sensations with the exception of that of clearness. Affections can neither be clear nor vague. They lack all degrees of clearness just as some sensations lack the spacial attribute.

Titchener's hypothesis, which gives a physiological correlate to this lack of clearness, states that the free afferent nerve endings may be the peripheral organs of affection. This brings affection very close to sensation. Titchener, in fact, says in regard to the three elements of consciousness, "that all three may, with some show of probability, be viewed as processes of the same ultimate type." The other distinction between affection and sensation lies in the relation of their qualities. Pleasantness and unpleasantness, the qualities of affection, are antagonistic, not opposites like black and white, but incompatible, so that the presence of the one in consciousness excludes the other.

It is only in the case of sensation falling upon a virgin soil,

thus escaping the influence of all past experience, that we can speak of sensation without perception. Sensation is for Titchener a concept arrived at by the analysis of perception, and he warns against a genetic interpretation of this concept. For practical purposes we may, therefore, say that sensations always enter consciousness grouped, that is as perception, the form of the group depending upon the laws of attention. They may also be and they almost always are accompanied by images. Without images the group is a pure perception, with images a mixed perception. The second and fundamental difference between sensation and perception is that perception always has meaning. In psychological terms, that is in terms of conscious representation, meaning which is context "is simply the mental process which accrues to the given process through the situation in which the organism finds itself." That is the essence of Titchener's concept of meaning. These words have already aroused in the minds of psychologists very different meanings, but perhaps further quotation and explanation will make clear the meaning which Titchener attaches to them. "Originally, the situation is physical, external; and, originally, meaning is kinaesthesia; the organism faces the situation by some bodily attitude, and the characteristic sensations which the attitude arouses give meaning to the process which stands at the conscious focus, are *psychologically*² the meaning of that process. For ourselves, the situation may be either external or internal, either physical or mental, either a group of adequate stimuli or a constellation of ideas; image has now supervened upon sensation, and meaning can be carried in imaginal terms." Further, and this seems at times to be overlooked, the meaning need not be represented in consciousness. There may be a short cut such as occurs in the change from voluntary to involuntary action. To take the example of rapid reading, certain words may produce a certain nervous set, an attitude in physiological terms only, which turns the thought in a definite direction without any imagery of the meaning occurring in consciousness. A second point which is overlooked is that, while the imagery which carries the meaning may shift and probably never is the same in any two minds, the function of the corresponding physiological processes remains the same and the thought or action is directed toward the same definite goal. If A and B both go up the same flight of stairs, A may retain a kinaesthetic image of his movements, B a visual image of the stairs or even the image of a

² Italics are mine.

bald head he saw just in front of him. Later if A and B see the word *ascent*, the imagery, which is the psychological representation of the meaning, may differ. In the one case it may be a kinaesthetic image, in the other a visual image of a flight of stairs. The cortical set, or we may say by analogy with the physiological processes, the function of the imagery, will be identical if A and B both mean the same thing. It should be clear from this why we cannot build up synthetically the meaning from the imagery; because in so doing the specific physiological processes are omitted. A bald head may mean a bald head, it may mean "but," that all depends upon the cortical set.

A perception, then, is a group of sensations with or without imagery and with meaning. One sensation alone in consciousness could not have meaning, therefore a perception must consist of at least two sensations or a sensation and an image. For Titchener this is a complete description of perception. The results of introspection have never proven to him the existence of a *form* of combination (*Gestaltqualität*) as a "distinct mental element."

An idea differs from a perception only in that it is composed of images. Even the same laws of growth and decay that we find in perceptions, apply also to ideas.

It was stated above that perceptions obey the laws of attention. Now how can attention itself best be defined? To describe it as a function brings us nowhere. It must be interpreted in terms of consciousness. Introspection discovers that the sensations and images in a given state of consciousness show at least two degrees of clearness, a fovea of relative clearness and a proportionately obscure margin. These degrees of clearness are found to be what is meant by degrees of attention. Thus attention may be described in terms of sensory clearness. Although Titchener has never experienced more than two levels of attention, he admits the possibility of many levels.

As long as a given series of perceptions or ideas remains in the fovea of attention and there is an absence of strain and the margin remains negligible we speak of primary (involuntary) attention. When that which is in the margin tends to come into the fovea and there is thus a fluctuation between margin and fovea, we have secondary (voluntary) attention.

Feelings were found to lack the attribute of clearness. That means that they never fall under attention. In a state of consciousness where we have a perception with a certain affective tone, the

attention can only be upon the perception. The affective tone does not even lie in the margin of attention. The attention, therefore, according to Titchener, does not cover the entire conscious state. Further, if we try to examine a feeling, that is attempt to bring it into the fovea of attention, it disappears. This, however, does not prevent the introspection of affections. Titchener's explanation of this introspection is that, although the attention is on the perception, the instruction concerns the affection, i. e., the attitude is to report upon the quality, intensity etc. of the affective tone. This attitude is sufficient to make possible the desired account of the affection.

The description of the different forms of action is most important. Here the lapse from full consciousness to physiological processes, the influence of the two states of attention, the function of the cortical set and the will consciousness are best shown. There is the typical impulsive action with its idea of end and its imagery of the intended movement. The idea of end is the conscious representation of the determining tendency. In the pure association of ideas this conscious representation is absent. A rough physiological description is a setting of the nervous tract for a straight path toward a definite goal. As in meaning the imagery may not be in consciousness, so here the idea of end may be absent. In the language of psychophysical parallelism there is a gap on the mental side. This gap may broaden until there is not even the consciousness of the intended movement. We then have secondary reflex. If there is a state of primary attention one determining tendency has undisputed control. If there is secondary attention, we find a conflict of impulses. We then have selective action. What Titchener calls volitional action is a variation of selective action. Instead of a conflict between two impulses—two motor tendencies—there is one between an impulse and an idea. There is a choice between a motor reaction and a continuation of the existing state.

Selective action, in fact states of secondary attention in general, come under what is generally called the will. Experiments tend to prove that there is a distinct will consciousness, which consists, on the conscious side, of an "acceptance." This may be represented by organic sensations or imagery which for the most part remain in the margin of attention. This consciousness of acceptance must not be confused with a "will element" which is denied by Titchener.

Analytically we may find unconscious reflex action developing

into conscious action. In regard to the genetic view-point Titchener believes that consciousness was present with the first action.

Emotions cannot be identified with organic reactions. Analysis shows an emotional consciousness to be a through and through affective consciousness. An emotion may occur under the conditions of primary attention or under those of secondary attention. This secondary attention is caused by a critical attitude concerning the cause of emotion, which attitude at times gains the fovea of attention. We then speak of sentiment rather than emotion.

With the description of sentiment the development of the affective side of mental life is complete. With the description of the thought processes the development of sensation and imagery is brought to a close.

That there are only three elementary processes is among the opening statements of the Text-book. In the genesis of the system it is naturally the last fact to be established. Thus far the assertion has stood. Perceptions contain nothing but sensations and imagery, ideas nothing but images. Introspection fails to find either a special form of combination or an action element. In the thought processes the possibility of the presence of the conscious attitude as an independent element and the idea of relation as a dependent element had still to be investigated. As to the first possibility, in the experiments from which the data were taken to prove this assumption, experiments which were conducted after the manner of the reaction experiments, a description of the objects of the ideas and not a description of the psychological vehicle of these ideas was given. Not only does Titchener think that there was no proof offered of the existence of thought elements, but that there was positive proof that no such elements were there. As to the second possibility, that of relation as a dependent element, the experiments which Titchener carried on in his laboratory were much more extensive than those experiments which seemed to show imageless thought and they proved that the consciousness of relation was always represented in terms of sensory or verbal imagery.

This brief outline of the system reveals the structural method in its most consistent form. Function cannot gain the structural psychologist's attention unless it is revealed in consciousness, i. e., unless we are aware of the act of seeing, hearing, etc., as well as of the seen, heard, etc. Titchener does not believe that we are aware of the function except as it is evinced in the temporal sequence of the act.

The nature of Titchener's sensationalism, it is hoped, is clear. It is a sensationalism very different from that of the old school. The sheet of wax cannot act as a true picture for a living substance with "all manner of complex synergy." Titchener may be constitutionally inclined toward sensationalism. He is, however, still more strongly set toward experimentation and although he believes that there are only three elements, all sensational in nature, yet he would be the first to honor the results of a flawless experiment which proved this wrong.

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THE NEW LOGIC AND THE NEW MATHEMATICS.

IN COMMENT ON MR. PHILIP E. B. JOURDAIN'S ARTICLES.

The new logic is a science of many surprises, for it has led to most astonishing results. Mr. Philip E. B. Jourdain treats this subject in two articles in the present number of *The Monist*, in one very short essay entitled "Some Modern Advances in Logic" and a longer one entitled "The Philosophy of Mr. Bertrand Russell." The latter is written in a humorous way which adds a peculiar zest to the dryness that otherwise prevails in logic. Even the title and subtitle with the corresponding citations in the appendices are a parody on Mr. Russell's *Critical Exposition of the Philosophy of Leibnitz with an Appendix of Leading Passages*. Mr. Bertrand Russell whom Mr. Jourdain selects as a target for his shafts is one of the most prominent representatives of modern logic.

It is here presupposed that the reader is acquainted with the political views of Mr. Bertrand Russell, who is an enemy of the Philistines' idea of personal property. At the same time he is a staunch free trader, a vigorous upholder of woman suffrage, and in his most popular writings, he prefers to speak in paradoxes.

Modern mathematicians have become conscious of the limitations of Euclid and give expression to the hypothetical nature of the traditional method of stating propositions by rendering them conditional through an "if." They do not say: "A is true, therefore B is true," but "If A is true, then B is true." With all due respect for this subtlety, we can not help thinking that this cautious mode of expression is like walking on stilts while one may step squarely on firm ground.